STRUCTURE 22

This structure is a reinforced concrete, gated spillway, with discharge controlled by two cable operated, vertical lift gates. Operation of the gates is automatically controlled so that the gate system opens or closes the gates in accordance with the seasonal operational criteria. The structure is located near the mouth of Canal 2 about 7000 feet from the shore of Biscayne Bay.

PURPOSE

This structure maintains optimum water control stages upstream in Canal 2; it passes the design flood (100 percent of the Standard Project Flood) without exceeding upstream flood design stage, and restricts downstream flood stages and discharge velocities to non-damaging levels; and it prevents saline intrusion during periods of high flood tides.

OPERATION

This structure will be operated to maintain an optimum headwater elevation of 2.9 feet, when sufficient water is available to maintain this level. The automatic controls function as follows:

When the headwater elevation rises to 3.5 feet, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 2.9 feet, the gates will become stationary;

When the headwater elevation falls to 2.5 feet, the gates will close at six inches per minute.

Salinity Regulation

In addition to maintaining optimum upstream fresh water control, as described above, the automatic controls on this structure have an overriding control which closes the gates, regardless of the upstream water level in the rare event of a high flood tide, whenever the differential between the head and tailwater pool elevations reaches 0.3 feet. A special timing device has been installed at this site to protect manatees during automatic gate operation. This device causes alternate gate operation. During this operation, where the

upstream float sensor indicates that the gate should open, one gate opens a minimum of 2.5 feet. If this opening results in a headwater stage below the gate close level, as it often does, this gate will close. Whenever the headwater stage again rises to the gate open level, the other gate will open in a similar manner.

In response to heavy rainfall, headwater elevation may be lowered until the storm has passed.

FLOOD DISCHARGE CHARACTERISTICS

	Design
Discharge Rate	1915 cfs
	100% SPF
Headwater Elevation	3.5 feet
Tailwater Elevation	2.7 feet
Type Discharge	uncontrolled submerged

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

Net Length 34.0 feet

Elevation -11.0 feet

Service Bridge Elevation 8.5 feet

Water level elevation which will by-pass structure 7.5 feet

Gates

Number 2

Size 15.0 feet high X 17.7 feet wide

Type vertical lift

Bottom elevation of gates full open 4.0 feet

Top elevation of gates full closed 4.0 feet

Control Automatic, on-site upstream control with override differential water surface control sensed by bubbler system and remote computer controlled.

Lifting mechanism

Normal power source commercial electricity

Emergency power source LP gas powered electric generator

Type hoist direct drive electric motor, gear connected to cable drum

Date of Transfer: June 25, 1956

ACCESS: The structure is located adjacent to Red Road (57th Avenue) across the street from Parrot Jungle.

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level Remote digital upstream and downstream recorders.

Gate Position Recorder Digital remote recorder on both gates.

DEWATERING FACILITIES

Storage needles at Miami Field Station, beams at West Palm Beach Field Station

Type needle beams and vertical aluminum needles

Size and number (per bay)

Upstream and Downstream

Number 1 beam; needles, 5 @ 4', 1 @ 3', 1 @ 2' wide

Size Beam 14WF78, length 18' -10"

Needles 20' long